

## *FINDING OF NO SIGNIFICANT IMPACT*

### SYSTEM IMPROVEMENTS OF THE DALECARLIA WATER TREATMENT PLANT AND MCMILLAN WATER TREATMENT PLANT FOR DISINFECTION AND PH CONTROL WASHINGTON, DC

**1. NAME OF ACTION:** System improvements of the Dalecarlia Water Treatment Plant and McMillan Water Treatment Plant for disinfection and pH control, Washington, D.C.

**2. DESCRIPTION OF THE PROPOSED ACTION:** Washington Aqueduct, a division of the U.S. Army Corps of Engineers (USACE), Baltimore District, operates the Dalecarlia and McMillan Water Treatment Plants (WTPs) in Washington, D.C., and has proposed in an Environmental Assessment (EA) a modification to the disinfection and pH control systems in order to enhance the reliability of the production of safe drinking water and to reduce operational risk. The EA specifically described the consideration of the replacement of liquid chlorine storage and feed systems with aqueous sodium hypochlorite storage and feed systems and the full or partial replacement of lime storage and feed system with new caustic soda and sulfuric acid storage and feed systems. As described in the EA and associated documents, implementation of the proposed action would allow the Washington Aqueduct to more effectively and safely accomplish its mission of providing high quality drinking water, meeting all regulatory requirements, in sufficient quantities as needed by customers in the service area.

As described in the EA, currently liquid chlorine, an extremely hazardous chemical, is used for disinfection at the Dalecarlia WTP and the McMillan WTP. Currently engineering and management controls effectively reduce the potential for off-site consequences of an uncontrolled release of liquid chlorine, which would expand rapidly and become gaseous. Aqueous sodium hypochlorite is a chemical that can perform the same function as liquid chlorine, but is inherently safer. However, aqueous sodium hypochlorite requires more storage volume than liquid chlorine for an equivalent disinfection dose. Sodium hypochlorite can be purchased and delivered in bulk, or it can be produced in a dilute concentration with equipment on-site. Both options for using sodium hypochlorite are technically feasible, although there is some uncertainty regarding the suitability of on-site sodium hypochlorite generation systems for the Washington Aqueduct water treatment plants related to the reliability, system efficiency and effectiveness. The EA indicates that further study of on-site sodium hypochlorite generation systems and their compatibility with the conditions experienced by the Washington Aqueduct is warranted.

The preferred alternative, which incorporates a combination of various possible options for both disinfection and pH control, was identified in the EA. Based on consideration of the feasibility, the cost, and the potential impacts associated with the alternatives considered, the preferred alternative includes the following features:

- Design, construction and operation of bulk sodium hypochlorite storage and feed systems at both the Dalecarlia WTP and the McMillan WTP, with consideration for facilitating the possible installation of on-site sodium hypochlorite generation equipment in the future.
- Continued study and future consideration of on-site sodium hypochlorite generation systems for the Dalecarlia WTP and the McMillan WTP.
- Design, construction, and operation of a caustic soda storage and feed system in order to precisely modify pH following initial pH adjustment with lime at the Dalecarlia WTP.
- Design, construction, and operation of caustic soda and sulfuric acid storage and feed systems for the control of pH at the McMillan WTP.

- Construction of a new structure adjacent to an existing storage building at the Dalecarlia WTP.
- No new structures at the McMillan WTP.

This alternative was identified as preferred because:

- The estimated cost meets the initial \$13 million capital construction budget.
- The conversion of the disinfection systems to using aqueous sodium hypochlorite will not be delayed while on-site generation is studied further to investigate the uncertainties associated with operating such a system with the specific conditions experienced at the Washington Aqueduct water treatment plants.
- The control of pH can be achieved in accordance with US EPA requirements in order to control corrosion.
- There are no anticipated significant impacts associated with any aspect of the preferred alternative.

The preferred alternative is also the environmentally preferred alternative because there is certainty in taking a phased approach as it allows for the immediate conversion from the use of liquid chlorine while allowing for possible future reduction in deliveries and transportation of bulk sodium hypochlorite without a significant waste of capital investment. In addition, with the preferred alternative the construction of new buildings is avoided at the McMillan WTP and minimized at the Dalecarlia WTP.

Since the preferred alternative is also the environmentally preferred alternative, and there are no anticipated significant impacts associated with it, it has been selected for implementation. The following measures will also be implemented as part of the selected alternative:

- Chemical offloading areas will be designed to control and minimize the potential for offsite observance of noise.
- Washington Aqueduct will study and consider further the operational uncertainties associated with installing on-site sodium hypochlorite generation equipment. Consideration of installing on-site sodium hypochlorite generation equipment would be described in additional National Environmental Policy Act documentation, if it is determined to be technically feasible.
- Washington Aqueduct will revise existing emergency response planning documentation to incorporate necessary spill prevention and response planning for the new bulk chemicals that will be used.
- Deliveries will typically occur during off-peak traffic hours.

**3. ALTERNATIVES TO THE PROPOSED ACTION:** The “no action” alternative would include maintaining the status quo operation of the Washington Aqueduct treatment facilities: delivery, storage and feed of liquid chlorine for disinfection; and delivery, storage and feed of lime for pH control.

The range of the “action” alternatives considered includes combinations of changes of the different chemical storage and feed systems. The following is a list of the variety of options related to the proposed action.

#### *Disinfection*

- Bulk sodium hypochlorite delivery, storage and feed:
  - Construction of aqueous sodium hypochlorite storage and feed systems
  - Deliveries of aqueous sodium hypochlorite at a concentration of 12%

- Storage of aqueous sodium hypochlorite at a concentration of 12% or, if diluted following delivery, 6%
- Sodium hypochlorite generation on-site, storage and feed:
  - Construction of aqueous sodium hypochlorite generation, storage and feed systems
  - Generation of sodium hypochlorite at the sites of the Dalecarlia WTP and/or the McMillan WTP at a concentration of approximately 0.8%
  - Deliveries of sodium chloride (table salt)
  - Greater relative usage of electricity and softened water

#### *pH Control*

- Complete replacement of the existing lime storage and feed systems with caustic soda storage and feed systems.
- Addition of a caustic soda storage and feed system for caustic trimming while continuing to use lime.
- Addition of sulfuric acid storage and feed systems.

A detailed description and evaluation of various technical options is in the Feasibility Study accompanying the EA.

**4. ANTICIPATED ENVIRONMENTAL IMPACTS:** Implementation of the proposed action in the preferred alternative would result in no significant adverse impacts, however would result in the following impacts:

- McMillan WTP
  - Air Quality (Minor adverse impact)
  - Hazardous Material Use, Handling, Storage and Hazardous Substance Generation (Minor positive impact related to aqueous sodium hypochlorite, minor negative impact related to caustic soda)
  - Traffic, Roadways and Transportation System (Minor adverse impact)
  - Potable Water, Sanitary Sewer/Wastewater, Utilities (Minor adverse impact)
  - Demographics and Environmental Justice, Schools, Recreational Facilities and Children's Safety (Minor positive impact related to aqueous sodium hypochlorite, minor negative impact related to caustic soda)
  - Economics (Minor positive impact)
  - Noise (Minor adverse impact)
- Dalecarlia WTP
  - Topography and Drainage, Stormwater Systems (Minor adverse impact)
  - Air Quality (Minor adverse impact)
  - Vegetation (Minor adverse impact)
  - Hazardous Material Use, Handling, Storage and Hazardous Substance Generation (Minor positive impact related to aqueous sodium hypochlorite, minor negative impact related to caustic soda)
  - Traffic, Roadways and Transportation System (Minor adverse impact)
  - Potable Water, Sanitary Sewer/Wastewater, Utilities (Minor adverse impact)
  - Schools, Recreational Facilities and Children's Safety (Minor positive impact related to aqueous sodium hypochlorite, minor negative impact related to caustic soda)
  - Economics (Minor positive impact)
  - Visual and Aesthetic Value (Minor adverse impact)
  - Noise (Minor adverse impact)

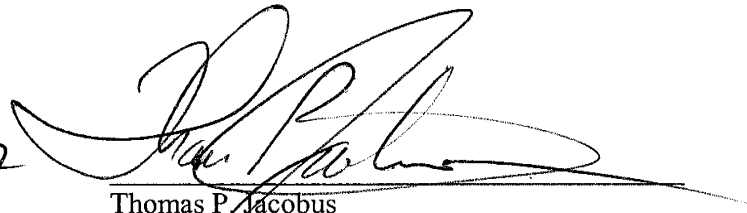
**5. CONCLUSION:** I have reviewed the EA, and find that the proposed action with the preferred alternative will not result in a significant impact on the natural or human environment. Based on this finding, preparation of an Environmental Impact Statement is not warranted. Washington Aqueduct will proceed with implementation of the preferred alternative, as described in the EA.

**6. PUBLIC REVIEW:** Copies of the EA can be viewed on the project website: <http://washingтонаqueduct.nab.usace.army.mil/hypochlorite.htm>. The EA has been distributed to appropriate Federal, State and local agencies, other groups and representatives. Requests for copies of the EA should be directed to the NEPA Coordinator at the address shown below, at 202-764-0025 or at [washingтонаqueduct@usace.army.mil](mailto:washingтонаqueduct@usace.army.mil).

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